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EIGHTEEN HUNDRED AND NINETY-TWO.

"A PROSPEROUS NEW YEAR" is our greeting and wish to all our readers, subscribers, and patrons, as well as to the *personnel* of the JOURNAL.

The many complimentary expressions and notices, the additions to our subscription list, and the demand upon our advertising pages during the past year, have all been signs of encouragement to us, showing the appreciation of our efforts, and proving the fact that no change was necessary. Consequently we will endeavor to keep the JOURNAL up to its present standard, in the interest of photography in its widest sense, and keep our readers thoroughly acquainted with everything bearing upon the art, both foreign and domestic; at the same time keeping, as heretofore, independent in all matters, free from any factional entanglements.

To keep pace with the growing demands upon the photographic periodicals of the day, we shall pay particular attention to the commercial as well as to the practical and scientific departments of photography, without neglecting the literary part or the current events of the day bearing upon our art-science.

It shall be our aim to keep our readers alive to the great strides now being made in Europe as well as America, and make the AMERICAN JOURNAL OF PHOTOGRAPHY the model photographic periodical,—interesting to the reader, helpful to the professional, indispensable to the amateur, essential to the scientist, remunerative to the advertiser, and profitable to the publishers.

FERROTYPES.

BY ELLERSLIE WALLACE.

IF we were asked to give the name of a class of photographic pictures returning handsome profits, and which could be finished easily and quickly, we should say the ferrotype.

We mean by this the old-fashioned ferrotype or collodion positive on thin japanned iron, not the ferro-prussiate or "blue" print, which is sometimes confounded with the former.

A rather startling story made its appearance in one of our recent English contemporaries, to the effect that dry ferrotype plates requiring but very short exposures were now articles of commerce. We have not yet seen them, but should welcome the introduction of such plates if they could be manufactured and sold at reasonable prices. But there are serious difficulties in the way; and to make clear why they are so we shall devote a few moments to a description of the ferrotype picture.

We have just said that the ferrotype was a collodion positive. Now by this we do not mean a transparent positive like the ordinary lantern slide, but a thin, delicate negative image, which, when looked at by reflected light, gives a positive picture, the clear shadows of the negative being black from the black backing with which these positives are always mounted. The deposit of silver which forms the opaque portions of a negative becomes brilliantly white when properly developed, and constitutes the high lights of the picture. It must be borne in mind that the positive is never regarded by transmitted light like the negative. In a certain sense, then, the positive may be called a weak negative.

Space forbids our giving a historical account of this pleasing variety of photograph, but we may say that it is a relic of the old ambrotype of glass or Niello-graph on black cardboard. At first ferrotypes were known under the name of Melainotypes, the iron plate having been introduced as a substitute for the black cardboard, which was inconvenient to dip into the silver bath.

Ferrotypes plates require no cleaning. They are packed in boxes, with a piece of clean paper between each two, which preserves the delicate surface. Nothing but the lightest touch with a camel's-hair brush is required before coating with collodion. Ordinary negative collodion is too thick and heavy for the purpose, and must be thinned down—say one-quarter or one-third—with ether and alcohol. If a collodion be purposely made, select a white, long-texture cotton, using not more than four or four and a half grains to the ounce, and reduce the salting to about the same figure,—say three grains of iodide and one or one and a half grains of bromide per ounce.

The bath may be about forty grains strong, with acid enough to give perfectly clean whites. The slightest fog or veil will be very observable in the finished picture. The plate should not be hurried out of the bath before the liquid runs perfectly smooth from its surface. Oily lines will leave a stain when the developer is applied.

The most convenient way of dealing with the ferrotypes plate after it leaves the bath is to put it right into the holder after draining off the silver solution as closely as possible, and to lay a piece of clean glass of the same size in behind it. This keeps the plate flat during exposure, and the two are separated for a moment only, just before developing, so as to drain off again the last drops of silver collecting during the exposure. This will insure freedom from stains. The exposed plate being again laid on the glass, the following developer is applied if "dead whites" are desired:

Sulphate of iron,	6 ounces.
Water,	80 ounces.
Acetic acid, No. 8,	8 ounces.
Alcohol,	6 ounces.

We ourselves have always preferred the following formula, however, on account of the brilliancy of the whites it gives. Although a trifle slower in action than the above, the results are more pleasing to the average customer, though, of course, the question of "dead whites" *versus* "brilliant whites" is one of individual taste.

Sulphate of iron,	6 ounces.
Acetic acid, No. 8,	6 ounces.
Alcohol,	8 ounces.
Nitrate of silver,	40 grains.
Pure nitrate of potash,	1 ounce.
Water,	80 ounces.

A complicated mess! some one may say. Perhaps it may seem so, but we know that it does the work well. Let us remark, that since the alcohol is only intended to make the developer flow smoothly, the quantity might be reduced with a new bath. The best way to add the nitrate of silver is to set aside a couple of ounces of the water, dissolve the nitrate in it, and add to the developer after all the other articles are incorporated. The decomposition of the nitrate of silver by the iron liberates a trace of nitric acid which aids in conferring brilliancy upon the whites of the picture.

Both of the developers mentioned give better results when a little "aged" and reddened. In winter time the bath and developer should not be allowed to become icy cold, or the picture will be covered with spangles of metallic silver. Some experience will be necessary to tell just when to stop the development. After a wash under the tap, the picture is fixed in a ten or fifteen-grain solution of cyanide of potassium, and there are few prettier things in photography than the instantaneous reappearance of the picture in all its cleanness and perfectness when fixed, after the sort of burying-up it undergoes during the development.

If the customer is impatiently waiting for his picture, the whole process of development, fixing, washing, drying, and mounting in a suitable frame or "preserver" need not occupy more than a very few minutes. The picture may be dried over a lamp or before the fire until it actually steams, and no fear be felt that the film will melt. If glass be laid over it in the frame even varnishing may be omitted, though we do not advise this. Let us say, in conclusion, that the great cheapness of this useful process is only to be equaled by the ease and expedition of the finishing, and that the results are second to none in permanency.

POSING AND COMPOSITION, WITH ESPECIAL REFERENCE TO THE ACCESSORIES.—II.

BY XANTHUS SMITH.

THE artistically inclined photographer, be he professional or amateur, has always an admirable resource in the use of drapery in composing his backgrounds.

Drapery gives us a greater range of agreeable effects than anything which may be used in its reality. Indeed, it may be said that it almost always comes into good advantage as a backing or part backing, either for single figures or groups; and as it may be selected of such hues as will take just the degree of importance which it is desirable that it should in forming the light and dark of the work, it in a measure substitutes painted backgrounds. It may be cast at the moment, with all the elegance of design with which the artist is capable of disposing it. With the painter his drapery is a matter of much solicitude, and hours are often spent in making casts of it to secure a very fine disposition. The charm of drapery as portrayed in photography consists in its beautiful variation of lines through all the varieties of right line and curve, as expressed in light and shadow; and if the folds be properly cast, these lines and sweeps are always agreeably contrasting each other. We have only to look at the work of the best photographers to see how beautifully it is portrayed by photography, and what a useful part it plays in their portrait and figure subjects.

Useful, however, as drapery is, and harmonious as are the effects produced by it when judiciously used, it may become very objectionable if allowed to run into long, straight, parallel folds of equal breadth, as it is very apt to do, or into portions of circles instead of elliptic sweeps. There should be a predominance of flat folds, making the whole softer and less obtrusive. A number of very deep parallel and equally spaced folds will make it so stiff and harsh and obtrusive, under a strong lighting, that nothing much worse could appear in a background. It should not be of too deep a color, or of a texture that does not light up well, as in the latter case it becomes heavy and overpowering. Nor should it be

equally disposed on both sides of the picture. A much greater predominance should be given either to one side or the other ; in fact, it is generally seen to the best advantage when contrasting a plain opposite.

The matter of weight, or balance as painters express it, of the two sides of a picture is one of great importance. The error is too often run into of crowding both sides of a picture or background with an equal quantity of objects, it being forgotten that the eye craves repose in some portion of the work. Do not, however, run into the contrary error of loading up one side of the composition and leaving the other perfectly bare, or you lose the proper balance, the crowded side appearing too heavy for the blank side, and making the latter look bald. Contrive to get some small amount of interest on the side that is to be of least importance.

It is a good plan, in practice, to bear constantly in mind that there must be a gradation in the scale of importance of the objects which constitute a picture. The sitter or group, if there be more than one, should of course decidedly take precedence over all the rest. Then there should be a second or supporting group, and properly a third and even a fourth dying-off spot of interest. Curtains, columns, balustrades, tables, chairs, vases, and various objects of virtu readily furnish us with the material for these secondary features, and we must at the outset determine which of these we will select to play second, third, and so on to our sitters. It will be obvious that to introduce them all prominently placed and conspicuously lighted would destroy the aim and repose of the work.

It must be remembered that I am now writing of efforts in the direction of artistic arrangements. There is much useful work done in photography in the way of views of apartments with their everyday contents. These are generally not pictures, however, but simple records of actual facts, interesting chiefly to the individuals for whom they were made.

I am sorry that I cannot accompany my remarks with illustrations, as a few examples would do much towards quickly making clear the observations set forth ; but I would recommend that all

who may have it in their power to do so should look at works of art, preferably simply in light and dark, as the *chiaro-oscuro* may be better judged of without the presence of color, and at the work exhibited by the best photographers, carefully comparing and weighing one work with another, and they will in this way both perceive the truth of the best principles of composition and light and shadow, and secure valuable hints to assist them in their difficult work.

One great advantage which the painter possesses over the photographer is that he is generally able to so arrange the costume of his figures that he may get the upper portion relieved light off dark, and the lower portion dark against light, and *vice versa*. Nothing is more destructive of an agreeable effect in a picture, or gives so dry and stiff an appearance, as to see principal objects relieved from top to bottom dark against an evenly light background or light against a correspondingly dark background. Why it should be so is not easily to be explained; but we have only to compare a photograph of a person posed at full length, or even half-length, in very dark garments against a light background, with one in which the costume or the background have been so varied as to make less equal relief, to see how hard and dry the former is as compared with the latter, in which some art has been used to attain variation. Yet this is a difficulty that the photographer must daily encounter. Men are constantly presenting themselves in light or dark suits from head to foot, and ladies in black dresses, occasionally velvet, and white silk and satin dresses. One of the most imposing subjects to be dealt with by the photographer is the lady in her white wedding suit. Now, what can he do? The only thing seems to be to lose either the upper portion or the lower, preferably the latter, in the background. By this art and the use of a background that will not give too great a contrast, we may do a vast deal towards overcoming this objectionable quality of equal relief and stiffness in a work. In varying the depth of the background, however, care must be taken not to let the change from light to dark be too sudden, thus bringing the opposing shades together so as to form an abrupt termination, and giving rise to an objectionable

line up and down or across the picture. As with the best-painted backgrounds, the light portion should melt into the dark, and diagonally instead of horizontally, making the greatest variation of tint at the upper and lower right and left-hand corners, instead of equally across the top and bottom, of the background.

When there are no backgrounds at command, drapery is the most useful substitute, and it should be so disposed and lighted as to attain the aim of destroying equal relief. By placing dark drapery back of the dark or shaded side of the figure, we may lose, in a measure, the outline of that side; or by placing it back of the light side we may get a relief of light which will give a different and consequently more picturesque contrast.

In the use of drapery it can never be said that there is anything far-fetched or out of place about it, as can of many objects that are used in the composition of backgrounds. Curtains and hangings of various kinds are so much the rule in the furnished apartments of civilized life that they always appear in place, and especially well do elegant draperies come in in poses of ladies, the look of finish, harmony, and comfort all contributing to the general effect of completeness. We may say, too, and especially to the amateur, that drapery of some art or other is one of the easiest things to be laid hold of. For those who cannot attain fine hangings plenty of cheap substitutes are to be had, down through canton flannel to soft muslins of various shades,—even an old gray shawl has done good service in a simple subject when nothing better was at hand. If at all situated so as to have access to the work exhibited by the best photographers, you have only to look it over carefully to see how much excellent use is made of draperies of various kinds in giving variety to what would otherwise be bald spaces of background, and getting varied relief in the lights and darks, and in breaking up stiff, awkward lines of architectural and other features. I have seen in a sitting female pose all the objectionable angularity and hardness taken out of a rosewood chair by a soft light shawl being thrown over a portion of it.

I recommend looking at the work of professional photographers because they are compelled to deal with art in its relation to the actual facts as they daily present themselves to the photog-

rapher. I would by all means, as I said before, advise studying, whenever opportunity affords, good works of art, and storing up for use every hint that may be obtained from them; but, unfortunately, owing to the effect attained being so fully at the will of the artist, a vast deal cannot be applied from painting or higher art teachings, and unless the essayist with the camera is considerably advanced in art and culture he is more likely to be confused than benefited if he wanders into the walks of higher art.

THE EFFECT OF TEMPERATURE ON DEVELOPMENT.

AS the winter season is now once more upon us, and we may expect spells of intensely cold weather, with their usual annoyances to the photographer, we reproduce the following paper, published during the past winter in the *British Journal of Photography*, which should be carefully read and noted by every professional photographer.

The coming winter season will produce, no doubt, the usual crop of trouble in many quarters, but perhaps in no respect is greater annoyance caused than by cases of supposed under-exposure. The light at the present season is, under the most favorable circumstances, none of the best, but when still further reduced by fog and leaden skies the necessity for increasing exposures is forced upon every operator. And yet, when every reasonable allowance has been made, even when some form of actinometer is employed, and the exposure increased accordingly, in too many cases feeble images and lack of detail recur with exasperating persistency.

It is not unseasonable, therefore, to repeat the warning frequently given in the past, to look to the temperature, not only of the developing room itself, but also of the stock solutions, and especially of the water used in mixing the developer. It is not too much to say that plate makers receive more undeserved abuse and more failures are set down incorrectly to under-

exposure at this time of the year, or during the prevalence of such weather as we have had lately, than under any other circumstances, and solely in consequence of disregard of the altered conditions attending the lowered temperature.

How greatly the conditions of development are modified by a sudden change of temperature was brought forcibly under our notice a few days ago upon resuming the development of a number of plates exposed some six weeks ago, a portion only of which had been developed at the time, the remainder being left over. The exposures had all been short—a fraction of a second—but tolerably uniform, the subjects being all of a similar character, and so far as those previously developed were concerned, had proved sufficient when treated with a knowledge of the circumstances. On resuming development, however, pyro and ammonia failed entirely in giving anything but the merest ghost of an image; so we were fain to avail ourselves of the extra energy alleged to be one of the chief features of eikonogen, but even this in two or three trials fell short of producing the desired result.

It was then that the question of temperature forced itself on our attention; and here a peculiarity in connection with pyro and eikonogen development respectively made itself apparent. Whereas when the developing solutions were made up with water direct from the tap, and necessarily very cold, the difference between the images produced by the two agents was very pronounced when water tempered to about 65° Fahr. was employed, the results were practically identical, and negatives in every way equal to those obtained when the weather was warmer were obtained. This seems to establish the fact that development with pyro is far more powerfully influenced by the temperature of the solution than is the case with eikonogen, and suggested the question as to how hydroquinone compares with its rivals.

Hydroquinone, as we all know, is, under like conditions, far slower in its action than pyro or eikonogen; but a way out of this difficulty was put forward by some of its earlier friends in the recommendation to slightly raise the temperature, thus show-

ing that its susceptibility to this influence was fully recognized. Upon submitting plates similarly exposed to the action of the three developers, hydroquinone, as we were prepared to find, proved to be far more strongly influenced than either of the others, eikonogen, as already stated, being least so, and pyro occupying the midway position. Indeed, with an exposure that sufficed to give detail under treatment with eikonogen when mixed with water at a temperature but a few degrees above freezing point, hydroquinone, under similar conditions, appeared scarcely to possess any developing power at all. In view of the great and growing popularity of this developer in many quarters it is therefore of the very highest importance to bear this in view.

Another very curious point of difference between the behavior of pyro and eikonogen under variations of temperature may also be noticed. Some three or four years ago, in an article on the effect of temperature on development,—pyro alone being then referred to,—it was shown that given a sufficient exposure, a more vigorous result was produced by a cold developer than by one of higher temperature, and such also proved to be the case in our recent experiments. But with eikonogen a precisely reverse result was obtained. With a solution at the low temperature above alluded to, it was found impossible with any exposure, or with any strength up to ten grains of eikonogen to the ounce, to get anything beyond a thin, delicate image, while on raising the temperature to 60° or 62° full density was easily obtained with a solution of half the strength. Here, then, is another point it would be well to bear in mind.

With regard to the means to be adopted to remedy the evil of cold solutions, much will depend upon circumstances. The precautions that might satisfy an amateur or small worker would probably be insufficient or inconvenient in a large professional studio, while the elaborate arrangements suitable for work on a large scale would be altogether out of the question for the amateur. For the latter, perhaps, no greater refinement is needed than a jug of warm water with which to bring up the temperature of a second jug to the necessary point, and to use this for,

at any rate, mixing the developer and the fixing bath. The temperature of the washing water is a matter of minor importance, except in so far as it affects the expansion of the film; for it must be borne in mind that the use of solutions of varying temperature has been alleged to be a prolific source of frilling. This, however, was in days gone by, when frilling was a greater bugbear than it is at present.

Any method of working on a large scale should at least possess the advantage of being automatic,—that is to say, it should not require the constant attention of the operator to keep the temperature properly regulated. This, in the majority of cases, would fall in the domain of the hot-water engineer. But a very simple, and at the same time efficient, arrangement for a moderate-sized business is found in a small self-supplying cistern in the dark room, refilling itself, as used from, from the main or other source, and warmed by means of a properly protected gas-jet working in connection with a suitable thermostat or regulator. The best regulator for this purpose that we are acquainted with is that of Reichert, with which we have maintained an even temperature, without the variation of half a degree, for a period of three weeks. It costs but a few shillings, and is wonderfully sensitive, and can be set to any desired temperature.

Souvenir Spoons.—Every day we see more numerous and beautiful souvenir spoons brought into the market. A favorite method of obtaining a particular design, is to go to a regular artist and have him draw the inscription and design according to directions. If one is at all clever it is rather easy to etch the handles oneself. The spoon must be dipped in melted beeswax, and when the thin coating that the wax will form on the silver is entirely cold, trace the pattern on it with a needle firmly fixed in a penholder. A darning needle makes the fine lines, and a No. 9 sewing needle the finer ones. Mix one ounce sulphate of copper, one-quarter ounce alum, and half a teaspoonful of fine table salt with one gill of vinegar and twenty drops of nitric acid. Immerse the spoon in the mixture, remembering that the depth to which the acid will eat in the metal depends upon the length of time the article is left in the solution.

NEGATIVE RETOUCHE: HISTORY, OBJECT,
NECESSITY.¹

BY HANS ARNOLD.

(Translated from the German by J. F. Sachse.)

THE art of retouching, in common with the whole field of photographic practice, has reached its present high stage of perfection, in a comparatively short period of time, from a very small beginning. This is especially true respecting the retouche which from the time of its first application gained a foothold in all photographic circles throughout the world with lightning rapidity.

This development from the simplest technique to a complete branch of art has been so extraordinary that a retrospect of the short but significant development of this particular branch of professional photography will prove both interesting and instructive.

As our object is to confine ourselves to the negative retouche, we will commence our history with the time when negatives were first produced on glass, which, as our readers well know, was a considerable time after the discovery of photography. When photography was first discovered the discoverers never for a moment foresaw the great rôle which it was destined to fill in the future; else they (Victor Niépce, for instance) would have been less communicative and disinterested in publishing the discovery, and thus making it common property during their own time without gaining any special advantages or reward for themselves as individuals.

But with the negative retouche it was different. To return to the first stages of its development, the discoverers as well as those in the secret were well satisfied of its great value to photography and its pecuniary value. This discovery was not heralded openly throughout the world, but remained a secret,—a process and manipulation which was long sought for in vain.

¹The Negative Retouche, According to the Laws of Art and Nature. By Hans Arnold. Vienna, 1891.

For a long time it was believed that the wonderful effects shown were the result of retouching the positive print. They were ascribed to a manipulation of the surface; but all attempts to wipe off the supposed manipulation upon the surface necessarily failed, as the effects were obtained by the negative retouche, about which the world at large knew nothing, the retouche then in vogue being merely a touching up of the finished silver print, which was easily washed off.

Many were the theories advanced regarding the fine, soft effects shown, intended to lift the veil of mystery. Pictures were examined with powerful magnifying glasses, learned papers read by prominent scientists,—all, however, without in the remotest manner hinting of any manipulation of the negative. During this excitement and controversy the shrewd inventors of the negative retouche remained behind their desks, laughed in their sleeve, and drew a pecuniary fortune from the ignorance of the photographers at large. A branch of the profession claimed to have been remunerative from the outstart. When at the present day we observe the negative retouche, in its universal application, from the standpoint of its great artistic efficiency and necessity, it is almost beyond belief that it is still in the state of incipency. Yet, as a matter of fact, it merely dates back to the sixties of the present century.

The retouche in its widest sense is much older, as it dates back to the days of daguerreotypes; but on account of the material then in use it failed to give the beautifying results which the operator wished to obtain.

However, from the time when the graphite pencil asserted its mastery in the negative retouche, about the year 1866, a field of boundless scope and usefulness was opened, which from the outstart was received into public favor in all quarters.

As is usual in such cases, the users of the new process soon went to the other extreme. Exaggeration became apparent, especially as it was less trouble for the unconscionable workers, and required less artistic perception than the execution of the retouche according to the confined laws and rules required by true art and nature.

Among the earliest photographers who secretly made use of the negative retouche, we find the late O. G. Rejlander.

The honor of being the first to reveal the process of retouching the negative belongs to photographer Rabending, of Vienna, a man honored and respected everywhere in art and photographic circles.

It was he who introduced the celebrated portrait studies known as "The Vienna Heads," in the portraying of which no one ever equaled him at home or abroad. His superiority consisted solely in the artistic retouching of the negative.

Rabending did not at first make use of graphite points, but utilized the precipitate formed by adding ferrous sulphate and pyro to a dilute solution of nitrate of silver, which corresponded with the tone of the plates.

This precipitate he combined after washing, with any suitable medium, and used it by direct application to the negative with a fine stump or points of wood. He soon found himself obliged to abandon this method on account of the unsatisfactory nature of the results. This he did the more readily when he found that graphite gave even better effects.

He made no secret of his experiments with the graphite and thus contributed largely to the development of the negative retouche.

By his true artistic definition of the object of the retouche he at once became the guide of all such who strove to elevate the art of retouching by making it serviceable in the most correct manner. This object of the retouche is and can be no other than the production of artistic work with fidelity to the original.

While Rabending's artistic productions at once became the guide for the application of the negative retouche, the principles of his manner were formed into set rules for practical use, as the same principles were also discovered in the work of other early retouchers.

This striving for insight and perfection would not have been objectionable if it had not led to the so-called "stencil work," in so far as the rules which were applicable to this or that face were soon used indiscriminately for all faces.

A shortcoming that soon became apparent to all judicious operators, but not before it was too late to undo the evil.

It was so nice and easy to study certain set rules, just like a grammar at school, and then by their equal application earn the reputation of a good retoucher.

It is remarkable how difficult it often proves to make a simple truth clear to persons who believe in a certain system, when the truth fails to harmonize with their accepted system.

Even the simple truth that no two faces can be found which correspond in all particulars, or, in other words, that the difference in the facial expression in the human race is so great that no two faces could be found which would allow the substitution of the nose or an eye from one to the other without causing a marked difference in the expression, would convince these practitioners of the system.

So true and simple is the fact that the individual differences of expression in one cannot be worked up like that of another, that that which suits one face is entirely unsuitable for another, that the high light upon the forehead and nose cannot be indiscriminately placed upon another, yet the "system" adheres to its theories, and objects to acknowledging these natural.

When, at last, some of the more conservative obtained the ascendancy, they merely reached the point of theoretical acknowledgment, but practically remained true to their ease and stencil system, which had already so engrafted itself upon the art of retouching that it was impossible to eliminate it. Exaggeration combined with stencil work even to-day run riot in retouche circles, and all for simple convenience.

However, the time draws nearer when the abhorrence felt by the great majority of the general public against retouching shall assert itself, and demand retouching which will be faithful and artistic, securing to every portrait the natural expression of the original type. When this day comes the stencil system will be relegated into oblivion as a species of mechanical bungling.

THE ALLOTROPIC CONDITIONS OF SILVER.

THE existence of M. Carey Lea's allotropic silver having been doubted by Professor Meldola, the former gentleman, in a communication to the *Chemical News* recently, offers the strongest evidence of the reality of the substance in question. Quite recently, also, M. Berthelot called the attention of the Paris Academy of Science to M. Carey Lea's paper on the allotropic states of silver, and exhibited specimens of the color of gold and others of a purple color sent him by the author. He explained the importance of these results, which remind us of the work of the ancient alchemists; but he reserved the question whether these substances are really isomeric states of silver or complex and condensed compounds, sharing the properties of the element which constituted the principal mass (97-98 per cent.), conformably to the facts known in the history of the various carbons, of the derivatives of red phosphorus, and especially of the varieties of iron and steel. Between these condensed compounds and the pure elements the continuous transition of the physical and chemical properties is often affected by insensible degrees, by a mixture of definite compounds.

The following letter appears in a recent number of the *Chemical News*:

Sir: In a recently published lecture Mr. Meldola seems to call in question the existence of allotropic silver. This opinion does not appear, however, to be based on any adequate study of the subject, but to be somewhat conjectural in its nature. No experimental support of any sort is given, and the only argument offered (if such it can be called) is that this altered form of silver is analogous to that of metals whose properties have been greatly changed by being *alloyed* with small quantities of other metals. Does, then, Mr Meldola suppose that a silver alloy can be formed by precipitating silver in the presence of another metal from an aqueous solution, or that one can argue from alloys, which are solutions, to molecular compounds or lakes? Moreover, he has

overlooked the fact that allotropic silver can be obtained in the absence of any metal with which silver is capable of combining, as in the case of the formation by the action of soda and dextrine. Silver cannot be alloyed with sodium.

Mr. Meldola cites Prange as having shown that allotropic silver obtained with the aid of ferrous citrate contains traces of iron, a fact which was published by me several years earlier, with an analytical determination of the amount of iron found. Mr. Prange repeated and confirmed this fact of the presence of iron (in this particular case), and my other observations generally, and was fully convinced of the existence of both soluble and insoluble allotropic silver. Mr. Meldola's quotation of Mr. Prange would not convey this impression to the reader.

Of the many forms of allotropic silver, two of the best marked are the blue and the yellow.

Blue allotropic silver is formed in many reactions with the aid of many wholly different reagents. To suppose that each of these many substances is capable of uniting in minute quantity with silver to produce in all cases an identical result, the same product with identical color and properties, would be an absurdity.

Gold-colored allotropic silver in thin films is converted by the slightest pressure to normal silver. A glass rod drawn over it with a gentle pressure leaves a gray line behind it of ordinary silver. If the film is then plunged into solution of potassium ferricyanide it becomes red or blue, while the lines traced show by their different reaction that they consist of ordinary silver. Heat, electricity, and contact with strong acids produce a similar change to ordinary gray silver.

These reactions afford the clearest proof that the silver is in an allotropic form. To account for them on suppositions like Mr. Meldola's would involve an exceedingly forced interpretation, such as no one who carefully repeated my work could possibly entertain.

M. CAREY LEA.

Philadelphia, October 22d, 1891.

THE ELECTRIC AS A SUBSTITUTE FOR THE OXY-HYDROGEN LIGHT.

DURING the ten years that electric lighting has been one of the great industrial applications of electricity, and developed by the ingenuity of numerous inventors into a remarkably efficient piece of apparatus. Many uses have been found for it, and it has made its way into many situations where at first its introduction seemed to be impossible, or at any rate undesirable. In the early days of arc lighting, the great objection to the lamp was found in its uncertain regulation, resulting in hissing, flickering, and even in short periods of almost total extinction. The arc lamps in use to-day, however, give so constant and uniform a light that this objection has practically disappeared.

On account of the intense light given by the electric arc many workers have endeavored to apply it as a substitute for the oxy-hydrogen lamp used for lecture-room purposes. It will readily be seen that there are numerous difficulties in the way of a practical solution of this problem. Obstacles are found both in the regulation of the carbons and in their relative position to each other, and in keeping the supply of current to the lamp constant.

Some nine or ten years ago Mr. Douglas experimented with a light at the South Foreland Lighthouse, in which, by an ingenious arrangement of the carbons, the crater of the arc was maintained constantly in the same relative position to the centre of the lens, and furthermore the crater reflected the light forward, so that almost the entire amount of light emitted by the arc was thrown towards the lens. The results of his experiments were as follows: Taking the light given in a horizontal plane with the direct vertical arrangement of the carbons as 100, he found the light given towards

the East or front equaled	287
North or side equaled	116
South or side equaled	116
West or back equaled	38
Mean	159

Lately Dr. L. H. Laudy, of Columbia College, has adopted this arrangement of the carbons to lecture lanterns.

It is obvious in this that the ordinary position of the carbons in the arc lamp has been very much modified, as the crater, of course, generally throws the light downward instead of to one side. This peculiar position of the crater is obtained by placing the carbons in such manner that the axis of the upper or positive carbon coincides with the edge of the lower carbon furthest from the lens. The regulation of the carbons is on the principle of a focusing lamp, the arc always being in the same position in space. This is effected by a double movement of the positive carbon to a single movement of the negative, as the two are brought near to each other to compensate for the burning away of the carbon. The feed is perfectly constant, and so long as care is taken to maintain the voltage at the required figure the lamp will be perfectly free from hissing or flickering. As a consequence of this the variation in the intensity of the light is practically *nil*, and the intensity of a given lamp can be estimated within very narrow limits.

In connection with this electric lecture lantern several interesting points regarding its ready adaptability for the work are deserving of mention. Any lantern that has been used with the oxy-hydrogen light can easily be altered to carry the arc lamp. Other electric lamps for this class of work have generally required special cases of a more or less cumbersome nature. The oxy-hydrogen light requires considerable skill in manipulation, and occupies a good deal of time to set up and keep in working order. The arc lamps adjusted in a few seconds, and when once started the regulation is entirely automatic, no special skill being necessary in using it beyond the ordinary electrical knowledge requisite for the handling of an electric light of any kind. A further and very important advantage in favor of the arc lamp for lantern use is its extreme economy. It is found as the result of careful experiments that the oxy-hydrogen light costs about \$1.50 per hour, whereas the arc lamp can be run at a cost for current not exceeding 20 cents per hour; indeed, this is a liberal estimate at the ordinary meter rates for current.—*Exchange*.

NITRATE OF URANIUM TONING PAPER.

BY M. MERCIER.

IT is known that some sensitive papers, variously prepared, have the property of acquiring an agreeable tone after a simple fixing, and without having been previously toned. I think I have now determined the special conditions under which the peculiarity is produced. Having the intention, later on, to treat this subject at more length, I will give simply the conclusions of my investigations,—conclusions which may be summed up as follows: When we introduce into a sensitive paper, at the same time as the chloride of silver forming its base, a suitable reducing body, capable of reducing the silver salts under the action of light and giving a certain tone, this tone is more or less communicated to the silver reduced by the action of light on the chloride of silver alone. It is thus that sizes made of arrowroot or more or less condensene starches, albumen, resins, gelatine, etc., yield papers which after a simple fixing give different tones. It is thus, again, that the oxalates, the benzoates, the citrates, etc., give with chloride of silver prints which have, after fixing, variable tones,—purples, browns, or cherry-red. It is thus possible, instead of adding to the paper the already formed reducer, to cause this last to be produced by the action of the light itself. This happens, for example, when we add to the paper a per-salt of uranium, easily reduced under the luminous action to the condition of a proto-salt.

Nitrate of uranium, which possesses besides precious preserving properties, was therefore already indicated for the preparation of a paper requiring no toning, such as the one I had prepared under the name of iso-toning paper. The print shows itself, as usual, rapidly and with great sharpness. It is fixed directly and without previous washing, either with pure hyposulphite of soda, or, preferably, in the fixing bath of hypo and sulphite of soda. The print is washed and dried; it then acquires a violet sepia tone, and in a few days gradually becomes darker and very pleasant to

the eye. The toning may be instantly obtained by burnishing with the aid of heat, or by exposing the print to heat by any means whatever. An ordinary sad-iron yields excellent results. The print then acquires a beautiful violet-black tone, very greatly resembling the best tones obtained by toning with the gold salts. I will add, moreover, that some sensitive papers acquire by this treatment a more or less dark tone, but then this tone is rarely persistent. The iso-toning paper may also be toned with the greatest facility in the weakest gold or platinum baths, nitrate of uranium modifying the action of the bath. It is possible to obtain all shades from purple up to a blue-black. Toning after fixing yields equally excellent results. Yellow negatives, such as those developed with pyrogallic acid, yield, generally, prints having a very beautiful violet-black tone, even without the intervention of eat.—*Bulletin de la Societe Francaise de Photographie.*

NEW METHOD OF PHOTO-ZINCOGRAPHY.¹

THE method of these gentlemen, as just offered in a French contemporary, *L'Imprimerie*, is a modification of what is known as the albumen process. The facility and rapidity with which this method permits the obtaining of prints of great delicacy, shallowly engraved in intaglio, and the possibility of employing a phototype positive in the place of the usual negative (by way of screen), constitute advantages incontestably worth while making known to such persons as are interested in photographic processes applicable to printing. The greater number of existing methods require reversed negatives at once transparent and strong, conditions difficult to obtain at the same time; besides, the manipulations to which their use gives rise are delicate, and only lead to satisfactory results after long practice.

"Our method," say the Messrs. Lumiere, in M. Vidal's journal, "does not present the same difficulties. By conforming

¹ Experiments of August and Louis Lumiere, France.

exactly to the following directions there will be obtained pictures exempt from all defects, susceptible of furnishing excellent lithographic plates, or of being transformed into blocks suitable for typographic impression. The first thing is to prepare the following solution :

Water	1000 parts.
Albumen of eggs	100 parts.
Bichromate of ammonia	3 parts.
Sufficient ammonia to color solution light yellow.	

The mixture is thoroughly shaken, filtered with care, and then spread with a spatula on a sheet of polished zinc, previously cleaned with whiting. As soon as a thin coat of albumen is thus obtained, it is advisable to hasten the drying of it by slightly warming the plate. It is then exposed to the light under a positive, after which, the exposure being judged sufficient, the zinc is taken out of the frame, and with a roller is covered with a thin film of ink, *a'report*, to which has been added some medium varnish. It should appear deep gray, without any sign of an image or picture, and not black.

Upon immersing in lukewarm water the design appears very shortly, and can be very easily brought out by rubbing the surface of the zinc lightly with a little tuft or wad of cotton.

The image so obtained is a negative, and the metal is bared at the points representing the black in the original. The albumen has, in fact, remained soluble at these points, having been protected by the corresponding lines in the positive screen during exposure to the light.

The plate is then rinsed with plenty of water, dried, and plunged into a solution of perchloride of iron at 35° B., in which it should remain from ten to fifteen seconds. It is washed and then again dried. Upon subsequently passing over the zinc, heated to about 50°, a roller charged with the ink designated, and medium varnish, the ink adheres over the whole surface. A black picture is thus made, after which the deep parts are brought out by the aid of a smooth roller which is passed rapidly several times over the plate. There remains only to rub the bed with a

piece of muslin soaked in caustic ammonia. The picture appears in black, standing out from a brilliant background formed by the zinc. During this operation the bichromated albumen, insolubilized by the light, dissolves in its turn in the ammonia, and a second development is thus operated, the inverse of the first.

By the rubbing and with the aid of the ammoniacal liquid the ink is removed from the points at which the insoluble albumen is prominent, while the ink remains fixed to the zinc in the engraved parts. This last reaction is the basis of the method of the Messrs. Lumiere, and constitutes the novel side.

It is exceedingly curious to watch this inversion of the primitive image under the influence of the ammonia. The solution of the potash, soda, etc., or of their carbonates, does not bring such clear results, probably by reason of the saponification of certain elements going to make up the ink employed, and also because these substances do not possess the considerable diffusive power of the ammonia.

If the sheet is to be printed from lithographically, there only remains to prepare it in the ordinary manner by means of gallic, phosphoric, or chromic solutions. If, on the other hand, it is to be thrown into relief for typography, it should be powdered over with pulverized resin and then heated in the ordinary manner before proceeding to the first biting in.

In the latter case it is preferable to shorten the time of immersion in the perchloride of iron, in order to avoid too appreciable pitting at the points which should be in relief.—*Paper and Press.*

Positive prints in ordinary writing ink may be made, according to a writer in a French contemporary, by the following method: Albumenized paper is sensitized on a six per cent. bath of bichromate of potassium, and, when dry, a print is taken in the frame. The picture is washed, and then developed by brushing over it common writing ink, which must be done quickly. After being washed and dried, the picture is said to pass from a violet-black to a warm tone by prolonged exposure to the light.

SPIRIT PHOTOGRAPHY.

BY H. FOURTIER.

ONE of the most curious uses of photography is, without doubt, that which is applied to the reproduction of the inhabitants of the supernatural world. The idea, that any one of sane mind would for an instant admit that immaterial things might be reproduced by a process which is essentially a material one, is inconceivable; but without dwelling on such considerations we will proceed to show some of the principal feats of spirit photography.

It is some twenty years since we had an example of it here in France, which, as might have been expected, was exposed before the public tribunals. It was at this period that in a mysterious chamber Allan Kardec, one of the enlightened, held converse with the absent, both living and dead. At the call of the medium Voltaire came to make verses, and profiting by the fact that he was no longer in subjection to the laws of this world, perpetrated some alexandrians of fifteen feet; Descarte made a display of new systems; and Bossuet lost his spelling. Not content with the offer of specimens of their writing, the spirits, under the impulse that was given them, resolved to leave their photographs to the faithful, and requested that they would employ as medium a photographer of the name of B., whose workshop was at No. 5 Boulevard Montmartre. I have under my eyes, while writing these lines, some of these astonishing proofs. The believer, for it was necessary to be very believing, after having told who was the person from the other world that he desired to see again, passed into a waiting-room, where he found some other people, come without doubt on the same errand as himself. He chats awhile with a sympathetic neighbor, and betrays to him that it is not a spiritual motive that brings him to the seance as a disciple, but a desire to behold once more the lineaments of some lost one, whom he describes in a few words, and questions eagerly whether the magnetized lens can reproduce his desire. All these details are precious to the unsuspected confederate of the photog-

rapher, by whom they are soon conveyed to the latter, to be verified later on. Immediately after the necessary information was obtained, the disciple, with elaborate secrecy, was conducted into an ordinary skylight, where the only unusual thing which could be observed was that the usual painted background was replaced by a black screen. The medium-photographer, without delay, appears with his plate-holder charged with wet collodion; the pose of the model was rapidly settled, and he was requested to concentrate his attention and his will on the apparatus which he desired to see produced. While the disciple is fixed in ecstatic expectation the photographer operates. Immediately after he brings in a plate on which one sees by the side of the believer a vague, undecided form, just strongly enough delineated to detach itself from the black background.

The proofs that we possess are generally very bad. But what astonishes us is what Scarron tells of one of these spirits which holds in its ghostly hand the ghost of a card on which is impressed the ghost of an inscription. But on account of the want of clearness, arising from the badness of the negative, we are allowed only to surmise, without having the power to read this inscription. So much the worse! It would be interesting to know what was written in the other world. If as medium Mr. B. soared above the things of this world, as photographer he was sufficiently materialistic to feel the obligation to meet the payment of his note. However, his affairs prospered. But great is human stupidity when one endeavors to reclaim mankind! Wanting in faith, the police believed it to be their duty to mix themselves in the business. A commissioner of the police, a regular old bachelor, asked, while maintaining an absolute incognito, to see the shade of the late Madame the Commissioner, who had never existed. Powerful the summons! The spirit of the false defunct appeared on the plate, corresponding exactly to the tracing made in quiet simplicity by the false disciple.

This was sufficient. The commissioner of police showed his scarf, made a perquisition, and the spiritual fluid was immediately disclosed. The black cabinet communicated with a second skylight. The sensitive plate was put for a short time in an apparatus directed upon a wooden model draped in muslin, the

head represented by a cut-out photograph. They had a whole collection prepared to satisfy the tastes of all their clients. The feebly impressed glass served to obtain the portrait of the disciple. It was truly a cunning trick. The affair terminated before the tribunal in the midst of mocking laughter from one part of Paris, while the believing, indignant at the proceedings, say if—earth to earth. Mr. B. was condemned to some years in prison for swindling, and never more did Paris hear any one speak of spirit photography.

But in America, the classical land of the medium, the new art flourished more than ever. It was the same in England. In 1889 the journal *Photography* printed an enthusiastic article on the subject of spirit-photography. Some correspondents showed themselves to be skeptical, and brought down on themselves sharp reproofs on account of their want of faith, and in No. 36 (July 18th, 1889) the journal published a spirit photograph, and a long conversation with the medium who had obtained it, Mr. Robert Johnstone. I will rapidly analyze the letter, which gives, with trifling detail, a long account of the English method. Mr. Johnstone works in the evening by the magnesium light. He then discovers the most extraordinary things. He has a friend to pose for him, directs upon him the apparatus, focuses carefully, flashes the magnesium light after having uncovered the plate, and immediately plunges it into the developer. The plate does not give the portrait of the person who posed, but in its place a spirit. This one, for example, is the late actress, Nellie Powers, who, enveloped in a winding sheet, the face alone uncovered, offers to the medium a zinnia. This zinnia is a godsend! Who can tell the mystery of the spirit zinnia? Mr. Johnstone enters into lofty conjectures on the power of the spirits who, themselves immaterial, may obstruct the production of the mortal image. (If I had a voice on the subject, I might timidly suggest that the preliminary exposure had been sufficient for Miss Nellie, but was insufficient for the living model, but as I am not one of the elect, I must keep my explanation to myself.) There are here and there reflections of peculiar value, as Mr. J. is careful to remark that he always carries his box of plates in his pocket, so that it may be mag-

netized by contact with his person. Perhaps there may be something to be deduced from that.

Another important remark deserves a literal translation. "Mr. Rita (a friend of the medium) took his place to have his portrait taken in entire darkness. After an exposure of sixty seconds, he obtained a portrait which was a perfect resemblance. What was very curious (this is my opinion also) was that a more advanced medium told me some days later that the spirit had brought to light two parts of myself,—the head and the pit of the stomach. This fact has been corroborated by my personal experience, for I have often felt the spirits take "power" over me in these same places. These facts bring forth profound speculations. The most actinic part of the solar spectrum is not entirely visible; it is not luminous. The same here is an element not luminous derived from my body, which produces on the sensitive plate an analogous effect to that of the non-actinic portion of the spectrum. This furnishes us a curious parallel between the power of the solar rays and the vital force developed in the human body. It is a simple suggestion, given to indicate a course for scientific research."

Those in with the spirits quickly climb with ease to heights which leave other poor ordinary mortals quite breathless.

And let me tell you that Mr. Johnstone declares that he regrets extremely that he has not the time to tell of many more curious things which he has observed. How very unfortunate!

The American spiritual journals are full of such accounts. The police do not care to interfere, and the spirits frolic around more and more in the gelatine-bromide. Volumes have been written on this subject, insisting on the difficulties that one must overcome in photographing the supernatural world. We call on all our French amateurs who have made double exposures on the same plate to testify that, instead of it being a very difficult thing to accomplish, it is often too easy. We would like to believe that these men err in good faith, but when one is used to living in a spiritual world how spiritual one would become,—they on the contrary. You will all join me in owning that spirit photography is one of the best photographic jokes.—*Photo. Journal, Aug., 1889.*

ADVERTISEMENTS—PHOTOGRAPHIC.

BY J. FOCUS SNAPPSCHOTTE.

NOTHING gives one, if he be a close observer or student, a better insight into the customs of a community than the perusal of the advertisements in the local paper or class publication. This is as true of the photographic guild as it is of others. In addition, these announcements often open up the humorous side of a peculiar locality or some far-off country; then again we occasionally stumble upon announcements which seem very curious to us, yet are counted perfectly legitimate where they appear. We will give a few illustrations culled from such valued German exchanges as the *Wochenblatt*, *Archiv*, and the *Deutsche Photographen Zeitung*, the latter having probably the largest advertising patronage in Germany. * * *

MATRIMONIAL REQUEST.—A girl in the twenties, of pleasing external appearance, possessor of a newly built studio and branch establishment in a central district town of Silesia, wishes to marry herself to a photographer.

Gentlemen not under twenty-seven years, and of agreeable external appearance, with a fortune of at least 6,000 marks, Catholic faith, are solicited to send photograph with statement in accordance with the above conditions. Address H. Q. 4633.

N. B.—A native of Silesia will have the preference.

P. S.—No photographs returned.—*Wochenblatt*.
* * *

MARRIAGE PROPOSAL.—A photographer, thirty years of age, Catholic, with extraordinary practical knowledge and education, wishes quickly to wed a young woman (retoucheuse) up to twenty-six years of age, who besides education and refinement possesses a capital from 5,000 to 7,000 marks, for the purpose of establishing himself in business. Worthy offers are solicited, including portrait. Address Photograph, 30 Vienna-Neubau-Stiftgasse.—*Archiv*.
* * *

A GENUINE MARRIAGE PROPOSAL.—An independent photographer, twenty-nine years of age, a widower after several months of wedded experience, possessor of a fine paying business in a

small residence, seeks again a suitable life partner, who must possess business knowledge and qualifications as well as considerable property, which could be secured. Main conditions, irreproachable repute and presentable appearance. Address 1111.

N. B.—Approved applicants can obtain information respecting the person and business of the advertiser by applying to F. V. B., 236 Friedrich Strasse, Berlin.—*Wochenblatt.*

* * *

AN educated, elderly maiden, who is familiar with photographic work and thoroughly competent and reliable in housework, seeks a position. Clementina Meyer Haag.

* * *

WANTED—Reception lady with a good handwriting, who can master the English language and is adroit in her intercourse with the finest public. Reference and portrait to W. H. Dresden.

* * *

A FINE LADY, educated, in intercourse with fashionable public thoroughly experienced, in French and English languages, powerful both in speech and writ, seeks an appointment in a large gallery, even at a small salary.

* * *

WANTED by a lady of quality, for adequate remuneration, a few well-behaved and respectably dressed children to amuse a cat in delicate health two or three hours a day.

* * *

A CAPABLE, thoroughly independent photographer, not so very young, who in lighting, etc., fulfills the highest expectations, seeks a situation as operator or manager.

* * *

A YOUNG INDIVIDUAL, photographer, and deaf and dumb, with good recommendations, wants a situation in a studio.

* * *

FOR MY SON, who will be confirmed next Easter, a place as apprentice. Has plenty school knowledge for a photographer.

* * *

WHAT renowned photographer will take an intelligent young man, twenty-three years of age, instruct him in every branch of the art, and then engage him as a chief operator?

THE possessor of the chief photographic gallery in Brussels wishes to place his son in a similar German establishment. In return he would receive the son of his colleague into his house, to instruct him in the arts and teach him the French language. A fatherly supervision and strict oversight must be exercised by both parties, as well as giving good instruction. A. de Blochouse, Brussels.—*Wochenblatt*. * * *

A VERY REFINED YOUNG LADY, of a high-toned family, who speaks English and French, understands polished phrases of conversation, and has some knowledge of retouching positives, seeks a situation as reception lady.—*Photo. Zeitung*. * * *

ATTENTION.—The photographer Hesse (married, with children actually thirty-eight years old, emaciated figure, blonde, with a medium strong mustache), the same to whom I a short time ago loaned my new traveling camera, has disappeared with the same. I now entreat all gentlemen principals, him, in case the same the outfit anywhere attempts to sell, to bring to notice, that I may again come to my property. M. Scherer, Photographer, Freiburg.—*Wochenblatt*.

BUSINESS AT A PROFIT.

A SHARP commercial writer recently said this very pat thing: "The next crime short of highway robbery is to engage in a business without making any profit." Any one of sound sense will agree that if not a crime it is foolish and disastrous.

There are many things involved in the conduct of a business which determines its success or failure. Knowledge of the business, executive ability, the employment of competent help, judicious buying, care in giving credits, fidelity in collecting accounts, skill and enterprise in pushing trade,—all these and other factors, besides the amount of capital put in, have a bearing in determining whether the business shall prove profitable or not.

The particular point I have in mind to speak of just now, and one on which profits largely depend, is the price at which goods are sold. At what per cent. above cost are goods sold? In figuring cost are all the items counted which may legitimately be

reckoned in? Having fixed a selling price which is a reasonable advance above cost, is this price strictly and impartially adhered to? These are questions which every merchant should consider vital to his success.

There should be no occasion to speak of the necessity of sticking to prices, without deviation under any circumstances; but there is. The business world knows—and the worst of it is there are customers who know—that some merchants cut prices. When they do this they not only lose the profit to which they are entitled, but they injure business,—their own as well as their neighbors'.

When a customer finds out he can buy goods under the regular price, he has the merchants at a disadvantage, and will not hesitate to improve his opportunity. Nor does it stop with him, for people delight in boasting to others when they secure a cut in prices. Thus the merchant's own business is demoralized, and his competitors, with whom he ought to live in harmony, are justly incensed.

A merchant is just as much entitled to get from customers in the money received for goods a legitimate profit as to get the cost for the goods. The merchant cheats himself who sells goods without profit. It would be a good thing for some merchants, and it would not hurt any, to write out the last sentences, and underscore them in red, and stick them up in their counting rooms where they will often meet the eye.

Experience has proved that more goods can be sold at a good price firmly maintained than can be sold under the price-cutting policy. The merchants who have achieved fortune and success are those who have made it an invariable rule to make a fair profit on every sale.

A man who charges a good price shows he has confidence in his goods; and the very fact of charging a uniform price impartially to all necessarily begets confidence in the customer that the goods are right and desirable. When a merchant runs down his own goods by letting down the price, the customer may well entertain a suspicion as to their character, and if he is after first-class goods, seeks elsewhere. Business is business.—*Michigan Tradesman.*



1492—COLUMBUS—1892.

OUR ILLUSTRATIONS.

THE subject of our frontispiece, "A Study in Posing," is a specimen of German photographic art from the "Atelier Eckelmann," Herzog Wall 160-195, in Bremen, Germany. The photographer is Herr Theodore Eckelmann; the subject, his talented daughter, Mlle. Tillie, a favorite German actress of American as well as European reputation. The original negative was made with a Voigtlander lens upon a rather slow Monkhoven (40 x 50 ccm.—15.7 x 19.6 inches) plate with a thick emulsion. The prints are by the publishers of the AMERICAN JOURNAL OF PHOTOGRAPHY.

—"COLUMBUS, 1492-1892." As a seasonable illustration for the opening of the present year we present to our readers a rare portrait of the discoverer of America. Winsor, in his new critical and exhaustive history of the United States, states that no likeness of Columbus is known to exist where the claim to consideration is indisputable. We have, however, descriptions of his person from two who knew him, Oviedo and his own son Fernando; then we have accounts from two persons who certainly knew his contemporaries, Germara and Benzoni; and in addition we possess the description given by Herrera, who had the best sources of information. From these we learn that his face was long, neither full nor thin, his cheek-bones rather high, his nose aquiline, his eyes light gray, his complexion fair and high-colored, his hair, which was of light color before thirty, became gray after that age. It will be seen that this description corresponds with our picture, the original engraving of which was used to illustrate Ferdinand Colon's history of his father, Admiral Christoval Colon. This work was originally written in Spanish and translated into Italian, and during the last century again retranslated into Spanish, as no copy of the original Spanish edition was known to exist. For this new edition, a copy of which is in our possession, Bart Vazque la Grabo in 1791 engraved the plate which we here reproduce. As the inscription states, the work was done from the original by quadrature to insure exactness. The original painting is at the present time in possession of the Duke of Veraguas, and has been adopted by Muñoz for his official history. The portrait of Columbus in the archives of India, at Seville, is also a copy of this painting. Consequently we may well accept this portrait as the most authentic one of which has come down to us the great navigator.

THE PHOTO-ELECTRO-ARTOGRAPH.

ONE of the most astonishing accomplishments of recent progress in telegraphy is the sending of pictures over the electric wire. This has actually been done, with results so gratifying as to give electricians the hope that this will become one of the most important branches of telegraphy in the future. The accompanying cut, reproduced from



the original, will give some idea of the results attained. This cut was taken from a picture that was transmitted a distance of twenty miles over a single wire, with 100-volt current. In the latest type of the instrument a system of alternating currents is used by which it is possible to carry on picture transmission over very long distances.

The process is the invention of N. S. Amstutz, of Cleveland, Ohio, and is known as the electro-artograph. The time occupied in transmitting an ordinary column-wide illustration need not exceed eight or ten minutes, and the stereotyping

of the reproduction should not occupy more than a few additional minutes, so that the reproduction can be placed upon the presses along with the press despatches descriptive of the subject illustrated.

By a system of gears on the instruments it is possible to change the size of the picture at either end of the line; that is, a picture can be transmitted either larger, the same size, or smaller, and at the receiving end the instruments can reproduce it on the same or a different scale. The greatest accuracy is attained when large originals are used and reproduced on a smaller scale.

If it is desired to send hand sketches, a process has been devised by which an artist can make his sketches by suitable washes, preserving all of the half tones that he may deem necessary to the correct pictorial representation. Upon the completion of the sketch it is wrapped around a transmitting cylinder, and by a simple adjustment of the tracer the machine can be left to itself until the whole picture has been transmitted to its destination, where it is automatically reproduced.

RARE SALTS.

AT a recent meeting of the Chemical Section of the Franklin Institute Mr. Waldron Shapleigh exhibited the following specimens of salts of the rare earths:

Praseodymium, neodymium, and lanthanum oxides, sulphates, nitrates, chlorides, carbonates, oxalates, acetates, and double salts with the alkaline metals. Cerium oxide, oxalate, chloride, nitrate, and the double nitrate of the cerous and ceric oxides with ammonium. Yttrium and erbium nitrates, oxides, and oxalates. Zirconium oxide, nitrate, sulphate, and some double salts. Yttrium and erbium (not separated) oxides and nitrates obtained from gadolinite, cerite, monazite, fergusonite, and samarskite. Thorium and vanadium salts.

Also large specimens of the following minerals from which these salts were obtained: Samarskite, zircon crystals, and monazite sand from North Carolina, monazite sand from Brazil, gadolinite from Texas and allanite from Virginia.

Mr. Shapleigh said the collection was of interest, as it is the first time the salts of praseodymium and neodymium have been shown, and probably separated, in this country. Some of the salts have not been heretofore prepared.

The separation of these elements is long and tedious; the specimens shown have undergone nearly 400 fractional crystallizations, and have been in a state of constant preparation since early in 1888. Tons of cerite and monazite sand have been used, and tons of the salts of cerium and lanthanum obtained, but the yield of praseodymium oxide has been only a few kilos. The percentage of neodymium is much higher.

Dr. Carl Auer von Welsbach, in 1885, was the first to separate didymium into these elements, and, together with Professor Bunsen, to determine their atomic weights, that of Pr 143.6 and of Nd 140.8. The oxides are M_2O_3 , and probably M_2O_7 .

With one exception, the salts of praseodymium exhibited were of a pale green, and of neodymium pink or amethystine color.

Zirconium, lanthanum, and cerium should no longer be classed among rare earths, as hundreds of tons of ores from which they are obtained have been located in North Carolina, and there seems no end to the deposits of monazite sand, one of the richest ores, and containing most of the rare earths. In Brazil it does not have to be mined, as it is in the form of river sand. In North Carolina it is found in washing for gold.

Should the arts, trades, or manufactures create a demand for these so-called rare earths, nature could readily supply it from these two localities.

Thorium and yttrium minerals are not so easy to obtain; they have, however, recently been found in quantity in North Carolina and Texas.

Working on a commercial scale, he finds the yield of lanthanum from cerite nearly one per cent. higher than stated in the analyses published.

Photography of the Spectrum in Natural Colors.—H. W. Vogel gives a historical account of the photography of color and an explanation of the failures to accomplish it. It appears that Zeuker, in 1868, indicated the method of depositing layers of silver of suitable thickness to produce by interference of light colored photographs, a method which Lippman has lately developed. Lord Reyleigh's (1886) explanation of the colors in photographs produced by adjusting the layers of silver to wave-lengths in order to produce colors by interference is a repetition of the explanation of Zeuker. In the earlier processes Ag_2Cl was used in the sensitive film, and fixing of the image produced in this film by hyposulphite of soda, destroyed by separation of fine silver particles the regular layers which were necessary to produce interference colors. Lippman uses pure bromide of silver, which under the operation of fixing leaves the film in homogeneous, regular layers suitable for producing interference colors.—*Verhandl. d. Physik. Ges. Berlin*, 10, p. 33, 1891; *Photogr. Mittheil.*, 28, p. 7.

To avoid difficulty in mixing lampblack with another pigment or color, it should first be spread on the paint stone and carefully crushed into a loose, powdery condition, and then a sufficient quantity of the proper liquid should be added to render it semi-liquid. It will then break up and assimilate promptly with any desirable color, lead or other pigment.—*Painting and Decorating.*

REPRODUCTION IN PHOTOGRAPHS OF THE COLORS OF NATURE.

THE hall of the Franklin Institute was crowded on the evening of December 18th, 1891, to witness the reproduction of the colors of nature by the aid of the photographic sensitive plate by the process perfected and patented by our well-known townsman, Mr. Fred. E. Ives. To this scientific treat was added a most interesting lecture by Mr. Wm. N. Jennings, who accompanied Mr. Ives on his trip to the National Park. The subject of the lecture was the beauties and wonders of the Yellowstone region.

Mr. Ives, upon being introduced by Professor Houston, said the greater portion of the illustrations to be shown were "snap-shots" made by Mr. Jennings, and the pictures, he said, would do credit to the best photography. This assertion was strongly borne out by the enthusiasm of the appreciative audience. Mr. Ives also explained that he had remedied certain defects in his color camera, and he had been so successful in obtaining open landscapes and other views as to convince former skeptics of the possibility of making photographs in the colors of nature. The limelight used, he said, was not powerful enough to bring out the sunlight illumination, but the effect produced was intermediate between moonlight and sunlight. The occasion, he said, was the first in the world in which an attempt was made to illustrate a lecture with photographic pictures in the natural colors, and before the close of the season he meant to demonstrate the success attained with a greater variety of subjects. The colored pictures, as they were thrown upon the screen, occasioned much surprise, and were all applauded by the large audience present.

Mr. Jennings, who told the story of the trip of over 4,000 miles, was frequently interrupted by applause during the delivery of his lecture. Many of the views were very beautiful from both artistic and photographic points of view; and at the close of the exhibition the universal verdict was that the photographic reproduction of the colors of nature was an unsolved problem no longer.

Send in your last year's volume and have it bound. It will give you a volume of reference worth double the amount paid.

Photographic Hints and Formulae.

An Ink for Obtaining White Writing on Photographs.—

Iodide of potassium	20 grams.
Distilled water	60 grams.
Sublimed iodine	2 grams.
Gum arabic	2 grams.

In printing, a little of the edge of the paper is allowed to extend, and on this portion which has become very black the solution is used for the writing, which is then allowed to dry.—*Photographic Magazine*.

Imitation Ground Glass for Studios or Other Uses.—Sugar of lead, ground fine, and bleached linseed oil with a little varnish, well mixed and put on with a stiff brush.

Aniline-Black Marking Inks.—From time to time there appear in journals and works of reference certain formulæ for preparing indelible ink which have “aniline-black” as a base. Some of these bear evidence that they were written without any experience or knowledge of the subject, by persons unfamiliar with the nature and chemistry of true aniline-black. Such are, for instance, all formulæ which direct ready-formed aniline-black to be “dissolved” or “mixed” with other ingredients. Other formulæ, again, fail or are unsatisfactory for other reasons. Mr. R. Wright has recently investigated the subject, and has obtained some practical results, which he has communicated to the *Chemist and Druggist*. We give the essential parts of his paper here. In order to produce a satisfactory result, the aniline-black must be generated upon the fibre or fabric itself. It is therefore necessary that a mordant be first applied to the latter, and afterwards the proper aniline solution which will produce eventually the black color. The author recommends either of the following mixtures as *mordants*:

(a) Potassium chlorate	20 grains.
Copper sulphate	40 grains.
Ammonium chloride	20 grains.
Distilled water	6 fl. dr.
Thick mucilage of acacia	2 fl. dr.

Dissolve the solids in the water with heat, then add the mucilage.

(b) Potassium chlorate	20 grains.
Copper chloride	40 grains.
Ammonium chloride	20 grains.
Sodium chloride	30 grains.
Distilled water	5 fl. dr.
Thick mucilage of acacia	3 fl. dr.

Prepare like preceding. And the following as *developers* :

(c) Aniline	1 fl. dr.
Toluidine (solid)	10 grains.
Dilute hydrochloric acid	2 fl. dr.
Mucilage of acacia	2 fl. dr.

Dissolve the toluidine in the aniline, add the acid and mucilage, and mix. (The author says he used solid "ortho-toluidine." This must be an error, since this is a liquid, and remains so at temperatures over -20° C. He evidently means para-toluidine, which forms the starting point for fuchsin.—Ed. *American Druggist*.)

(d) Same as c, with addition of methylated spirit
(or alcohol) 1 fl. dr.

The spot upon which the writing is to be made is first to be treated with one of the mordants, and dried. It is then to be written upon with one of the aniline solutions by means of a quill pen. The fabric is then laid aside for several days, the longer the better, so that the air may exert its utmost influence upon it. Finally the fabric is boiled with soap lye, when the writing will come out perfectly black.—*American Druggist*.

Development with Succrate of Lime.—I have experimented with carbonate of lithia as an accelerator, and I have obtained with it rather favorable results. However, in opposition to Mr. Wickers, I have always found that carbonate of lithia, used even in larger doses than those recommended by this author, was not sufficiently active, and that development had to be too much prolonged in order to obtain prints of good intensity. I have also observed that the prints developed by this process were as often fogged as when I made use of carbonate of potash. The oxides of alkaline metals or their alkaline salts are not the only accelerators susceptible of being used in pyro development. Two oxides of the earthy alkaline metals, lime and hydrate of barytes, may also be used as accelerators. I will not insist upon the second, which, although giving some results, should be rejected from photographic practice on account of its caustic properties, and of its too great affinity for the carbonic acids in the air, which prevents the keeping of its solutions. This objection does not obtain for the first, provided, however, that ordinary lime water is not used, but a solution of succarate or succrate of lime. In my experiments I have made use of the following solutions :

SOLUTION A.

Pyrogallic acid	10 grams.
Sulphite of soda	20 grams.
Citric acid	2 grams.
Water	120 grams.

SOLUTION B.

Water	1000 grams.
Sugar	sufficient quantity to triturate.

To which add a sufficient quantity of pure lime to saturate the sugar solution. In this manner we get a highly concentrated liquid, very alkaline, and which keeps for a considerable time. To develop, I mix:

Water	80 cubic cent.
Solution A	2 cubic cent.

I throw this over the plate, and allow it to remain for a few moments, agitating; then I add to this bath, gradually and according to the results obtained, from one to two cubic centimeters of the solution B. These solutions should be made with a great deal of care and prudence, as the sucrate of lime is an accelerator of very great energy. Moreover, according as the plate has been more or less exposed, we may add to the developing bath a few drops of a solution of citric acid, or of a solution of an alkaline bromide. We obtain in this way very soft prints, sometimes too soft, which, however, are not more free from fogging than plates developed with hydroquinone (new bath), or pyro having for accelerators ammonia, potash, soda, carbonate of potash, of soda or of lithia. I do not give this process with sucrate of lime as perfect, but I give it as perfectable and susceptible of application. If I have undertaken to write these few lines it is because it has never been brought to my knowledge that up to the present time the oxides and the alkaline salts of the earthy alkaline metals have been studied from a photographic point of view.—*Leon Degoix, in Photo. Gazette.*

A Rifle Camera.—An ingenious invention in the line of photography is announced from Vienna. It consists of a miniature apparatus of aluminium, which is attached to the barrel of a gun. When a shot is fired an instantaneous exposure is made, and a circular photograph is obtained which shows the object aimed at. The target or game might be photographed in this manner.

The Editorial Dropshutter.

The fourth lecture under the auspices of the New York Camera Club was given on the evening of December 21st before a large and appreciative audience. The subject was "The Fair City of Florence," by the Rev. Charles R. Treat.

F. G. Warner, of San Francisco, who lately returned from an exploring expedition to the mountains of Alaska, reports that the party obtained over three hundred good negatives, all of which are sure to prove of great scientific and general interest.

The Liverpool Photographic Society has prepared a series of lantern slides, entitled "Illustrated Liverpool," which will be sent to this country in return for the set "Illustrated Boston," which proved so acceptable to our British cousins.

William Notman, the celebrated photographer of Montreal, Canada, died November 25th.

The Photographic News, commenting upon the new ferrotype dry plates, the invention of Nievsky, as mentioned in our last number, states: "By shutting up a plate in a printing frame behind a transparent positive,—say a lantern slide,—and giving a momentary exposure to daylight, or say about six seconds to lamplight, a positive copy can be obtained, which can be developed, fixed, and dried in something less than two minutes. We can imagine many an instance in which this wonderfully quick copying might be of value, and at a pinch a new negative might be made from such a picture if the original one happened to get broken. This new process has much to recommend it, and is well worthy of the attention of those who are interested in photographic novelties."

No time like the present for renewing your subscription. Read our offer on third page of cover.

An English contemporary offers back numbers of American magazines as a premium offer, and then goes on to state: "You may despise it, but an American magazine has an educational interest that is greater than its mere money value."

A happy and prosperous New Year to all! Remember, your subscriptions for 1892 are now payable; thereon depends much of our happiness and prosperity.

Keep your lenses in a dry place of an even temperature, away from all dampness and sudden changes of temperature; this is especially necessary in the winter. The polish of many a fine lens has been ruined by the failure to take heed of this simple precaution.

We furnish index and title page for Volume XII. with this number. In case you do not receive it please let us know by postal, and it will be sent by return mail.

Why cannot Dr. Andressen give us eikonogen in a permanent form, which will be as vigorous as the first crystals of that reducer, or which will work as uniform as pyro? There seems to be but little uniformity in the working properties of the different lots sent out. In our experience no two cans of the white powder have been exactly alike.

Our contemporary, *Lux*, of Amsterdam, the official organ of the amateur societies of Amsterdam and Harlem, comes to us in gala dress for the present month. It is the first number of the third volume, and contains a number of extra illustrations. Our old friend Sardanopius has an amusing fling at the guild of amateurs, in which he classifies them into seven classes, prominent among which are the "know-all-but-do-nothings," a class which is fully represented in our own section of the country. We wish our Dutch contemporary prosperity and well-deserved success.

Send your copies of the AMERICAN JOURNAL OF PHOTOGRAPHY to this office, and have them neatly bound in half crimson morocco, or any other color you desire, marbled sides and best workmanship. It only costs you \$1.00, postage or expressage to be paid both ways by the subscriber.

Now is the time to renew your subscription.

Among the means taken by the Mandarins of the Mangtse district to excite the populace against the Christian missionaries a number of placards were posted in chief towns along the Yangste-Kiang. The most ingenious lies were embodied in some of these posters. It is stated that the one which had the greatest effect of stirring up the ignorant populace set forth that the missionaries kidnaped women for the purpose of cutting off their breasts to manufacture into ingredients for photographic chemicals.

Miss Catherine Weed Barnes is now the editor of the Photographic Department in *Frank Leslie's Weekly*. She will have an article on some practical subject once every month, and invites correspondence.

Photographic Scissors and Paste.

Curiosities About Gold.—Gold is so very tenacious that a piece of it drawn into wire about one-twentieth of an inch in diameter will sustain a weight of five hundred pounds without breaking. Its malleability is so great that a single grain may be divided into 2,000,000 parts, and a cubic inch into 9,523,805,525 parts, each of which may be distinctly seen by the naked eye. A grain and a half of gold may be beaten into leaves one inch square, which if intersected by parallel lines drawn at right angles to each other, and distance only the one-hundredth part of an inch, will produce 25,000,000 little squares, each of which may be distinctly seen without the aid of a glass. The surface of any given quantity of gold, according to the best authorities, may be extended by the hammer 310,814 times. The thickness of the metal thus extended appears to be no more than the 566,020th part of an inch. Eight ounces of this wonderful metal would gild a silver wire of sufficient length to extend entirely around the globe.—*Detroit Free Press.*

Photographs of the Moon.—Professor Weinek, director of Kepler's old observatory at Prague, has been engaged for some years in making photographs of the moon, with the idea of securing a perfect map of the moon's surface. While engaged in this work he received a negative from the Lick Observatory. He saw that his own laborious work with an inferior instrument could never vie with the results obtained at Fort Hamilton, and he offered his services gratuitously to the Lick astronomers, saying that the matchless moon negatives he had received would save him years of effort in his task of completing a lunar map. Professor Holden thinks that about sixty moon pictures will be required, and that the expense of drawings and heliogravure plates will be about \$5,000.—*San Francisco Chronicle.*

A beautiful monument has been erected to the memory of Alessandro Manzoni, the Italian poet, in Lecco. Lecco was chosen as the site of the statue, as it is the scene of his celebrated novel, "I Promessi Sposi" ("The Betrothed"), as well as his home.

Art in Turkeytown.—Photographer—"Is there any particular way in which you would like to be taken?"

Mr. John Johnsing—"Yes, sah. If dere's no dejection, I'd like to be taken a light cream color."

The Secretary of the Treasury has made a ruling to the effect that books, photographs, and similar goods cannot be imported through the mails, but must be sent through the custom house and pay duties there. The effect of this ruling is to entail great inconvenience, delay, and loss of both time and money upon a large number of business houses and citizens, to whom such importations are a necessity, and who find themselves seriously interrupted and hampered by the new restrictions. Petitions to the secretary, reciting the evils resulting from his ruling, and requesting its reversal, are in circulation among the parties interested. They should be numerous signed, and promptly forwarded to Frank Hegger, 152 Broadway, New York.

Snow on the Moon.—Remarkable discoveries have been made at the Lick Observatory, California. Professor Holden, the director, has secured through the big telescope better photographs of the moon than have been taken anywhere else, and the work of photographing goes on every hour when the satellite is visible. By studying these photographs with a magnifying glass, and comparing them, any changes taking place on the surface of the moon may be discovered. The astronomers on Mount Hamilton have discovered some things that nobody else ever saw; but they have not determined whether these are new features or things that are too small to have been seen through a less powerful telescope. For example, upon the top of one of the mountains of the moon the photograph shows a luminous white spot that looks like snow. If that is snow, and if it was not there before, the presence of an atmosphere is indicated. It has been believed that the moon has no atmosphere, and therefore is uninhabitable; but if it should be demonstrated that snow falls upon the surface of the satellite, the accepted theory would be upset, and astronomers would begin to study the moon with new and greater interest.

Objects upon the moon are detected by their shadows, and a projection or eminence fifty feet high casts a shadow large enough to be seen through the Lick telescope. If Professor Holden, studying his series of photographs, should discover, some day, a new shadow where none had been cast before when the moon was in the same position and under the same light, he would know that something had been erected upon the surface, either a part of the crust upheaved by some internal movement or a building put up by living creatures. The moon appears to be a dead, desolate waste of played-out volcanoes and cooled-off lava beds, without atmosphere, and, like Arizona, rather short of water and good society.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, December 9th, 1891, the president, Mr. John C. Bullock, in the chair.

The board of directors made their monthly report, stating that the work on the improvements in the new quarters was progressing favorably. With a view to supplementing the subscriptions made by members, they recommended the appointment of a special committee of the society, to act in conjunction with the committees on meetings and lantern slides, in arranging for a series of three or more public entertainments to be given during the present season for the benefit of the house fund.

They further recommended that a special committee be appointed to arrange for a suitable reception on the occasion of the completion of the work in the new quarters of the society.

At the conversational meeting, November 25th, a collection of interchange slides from the Lantern Society of London, England, were shown. They were a remarkably fine set, and certainly one of the best collections ever sent to the society in this manner.

The amendment to the by-laws offered at the last stated meeting, making the annual dues of active members ten dollars, was taken up for action, and after considerable discussion was passed by a large majority.

Mr. Cheyney called the attention of members to an interesting book which he had come across, published in Philadelphia in 1853. It was entitled "Plain Directions for Obtaining Photographic Pictures by the Calotype and Energiatype, etc.; Also Practical Hints on the Daguerreotype," by J. H. Croucher.

He read various extracts from the book, which were interesting as contrasting some of the old-time photographic processes with those of the present day. Peculiar interest, however, was attached to one of the extracts on "daguerreotype panoramique," an account of recent threats said to have been made by Mons. Moissard to prosecute certain Americans for an alleged violation of his patents.

The extract read as follows:

DAGUERREOTYPE PANORAMIQUE.

"This apparatus is constructed to admit of a view of considerable length and of extreme nicety of delineation, being taken with a lens of moderate diameter. The lens is made to have a horizontal movement, which brings it to bear successively upon every part of the horizon within 150 degrees. Having been fixed so that the vertical

lines of the object are perpendicular with a line drawn through the ground-glass on which the focus is taken, the prepared plate is placed in a *flexible frame* and retained in a certain curve by stops fixed to the frame. The lens is now turned to the extreme limit of the view to be taken, and then gradually and smoothly moved onward by a rack-work attached to the camera till it reaches the other extremity, waiting a longer or shorter time at each point as the object is more or less illuminated. The plates are prepared and fixed in the ordinary way. The use of this instrument is difficult, however, and requires considerable practice to produce good pictures."

A large collection of hand-cameras was shown before the society, and their various peculiarities explained and discussed. Among them were the following: Anthony's Magazine Camera, the Sunol, the Kameret, the Hawkeye, the Premier, a folding Kodak, converted to use cut films in double holders, a Scovill Detective, a Henry Clay with long focus extension base-board, a Henry Clay Stereoscope, a Beck Stereoscope, a Swinden & Earp Magazine, a magazine camera by the Stereoscope Company, of London, England, also one made by Turnbull, of Edinburgh.

Mr. Carbutt stated that in view of the increase in stereoscopic work it might be well to mention that a very simple way of making transparencies for the stereoscope consisted in the use of cut films with a mat back. To obtain a perfect stereoscopic effect the negative has to be bisected and the views changed around. If the negative was taken on a film it could readily be cut with a square and knife so that they would come together perfectly. Where glass plates were used they had to be cut with a diamond, thereby running the risk of a rough edge. At the next meeting he intended to show some very good results in transparencies of the kind referred to.

Dr. Mitchell asked whether any of the members had tried the new developer, "para-amido-phenol." He expected to show a few lantern slides at the next meeting made by this developer, which was claimed to be the coming developer. So far it was extremely expensive, the wholesale price being about thirty-five cents per drachm; but it was very powerful, and worked quickly and strongly in a very dilute solution, about one part to two thousand. It was particularly excellent for bromide paper, giving much better whites than could be obtained with oxalate.

Mr. Stirling exhibited the Prosch lamp for pure magnesium powder, which seemed to be one of the best of its kind. He also exhibited a print made by the Kallitype process.

Adjourned.

In the Twilight Hour.

ALL men can't be masters.

A DANGER foreseen is half avoided.

A GOOD friend is your nearest relation.

THERE is more fatigue in laziness than in labor.

HONEST men's words are as good as their bonds.

WHERE the sunshine does not enter the doctor must.

THE greatest misfortune of all is not to be able to bear misfortune.

HUNGER scarce kills any, but gluttony and drunkenness multitudes.

REFLECT well before speaking, that a word once uttered can never be recalled.

NO MAN can be provident of his time who is not prudent in the choice of his company.

HAPPINESS generally depends more on the opinion we have of things than on the things themselves.

HE that follows his recreation instead of his business shall in a little time have no business to follow.

ADVICE, like snow, the softer it falls the longer it dwells upon and the deeper it sinks into the heart.

CHEERFULNESS is not a proof that the mind is at ease, for often "in the midst of laughter the heart is sad."

The envious man is like that rich man mentioned by Quintilian who poisoned the flowers in his garden, so that his neighbor's bees should get no more honey from them.

THE plainer the dress, with greater lustre does beauty appear. Virtue is the greatest ornament, and good sense the best equipage.

WE easily believe what we wish, but we have a wonderful facility in raising doubts against those duties which thwart our inclinations.

TO THOSE who do good in the morning every hour of the day brings pleasure, and for them peace and joy spring from every object around.

THERE is scarce any lot so low but there is something in it to satisfy the man whom it has befallen, Providence having so ordered things that in every man's cup, how better soever, there are some cordial drops, which if wisely extracted are sufficient to make him contented.

THERE are four good habits,—punctuality, accuracy, steadiness, and despatch. Without the first of these, time is wasted; without the second, mistake the most hurtful to our own credit and interest and that of others may be committed; without the third, nothing can be well done; and without the fourth, opportunities of great advantage are lost which it is impossible to recall.

THE first weed pulled up in the garden, the first seed put in the ground, the first dollar put in the savings bank, and the first mile traveled on a journey are all very important things; they make a beginning, and thereby a hope, a pledge, an assurance that you are in earnest with what you have undertaken. How many a poor, idle, erring, hesitating outcast is now creeping and crawling his way through the world who might have held up his head and prospered if, instead of putting off his resolutions of amendment and industry, he had only made a beginning!

Literary and Business Notes.

AUTOTYPIC IN ALL ITS VARIOUS BRANCHES. By J. O. Mörch. Published by E. Liesegang, Düsseldorf, Germany. This compact manual, with eight explanatory illustrations, is what it claims to be,—viz., a practical guide to the production of printing plates from photographic positives and originals of unbroken graduation by photo-mechanical means, for use on book, lithographic, or copperplate press. This concise work by Prof. Mörch is written in a clear and plain style, and will prove a boon to the practical worker in the various half-tone processes. The writer, being a practical etcher, here gives the results of his own experience. We think this is the first exhaustive practical work in this important development of the photographic art.

THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC FOR 1892. New York: The Scovill & Adams Company. The first of the annuals to reach us. The work is handsomely bound in cloth, and contains 363 pages of reading matter, with 24 full-page illustrations. The meat within the shell consists of 120 papers upon every branch of photography by as many different writers—native and foreign, many of whom are well-known authorities. In addition to the above, the annual contains the usual amount of calendars, formulæ, tables, etc., the whole forming a handy reference volume which every intelligent photographer should have within reach. Orders for same sent to the office of *AMERICAN JOURNAL OF PHOTOGRAPHY* will receive prompt attention.

HANDBUCH DER PHOTOGRAPHIE: For Amateur and Tourist. By Major L. Pizzighellé. Second edition. Wilhelm Knapp, Halle a. S. Volume I., Photographic Apparatus; embellished with 531 engravings printed in the text. The first edition of Major Pizzighellé's work, published in 1886, has been exhausted for a considerable

time, and to meet the demand the present enlarged edition now makes its appearance. So great have been the strides in the photographic art within the past few years that the present edition of Major Pizzighellé's work will, from necessity, have to be divided into three volumes. Volume I. deals exclusively with photographic apparatus under seven sub-titles,—viz., I. The Pinhole Camera, II. The Objective, III. The Camera, IV. The Selection of a Camera and Lens, V. Stereoscopic Apparatus, VI. Apparatus for Enlarging and Reducing, VII. The Magnesium Blitz-Pulver Apparatus. The presswork, like all work from the establishment of Wilhelm Knapp, Halle, is a model of neatness and a credit to the publisher.

THE New England Magazine, an illustrated monthly published by the New England Magazine Corporation, 86 Federal Street, Boston. \$3.00 per year. The Christmas number of this interesting publication has been received, and is full of entertaining matter, not the least of which are the "Stories of Salem Witchcraft" (illustrated), by Winfield S. Nevins, and "Pen Pictures of the Bosphorus," by Alfred Hamlin. The typographical work is excellent, and the printing of the many half-tone blocks in the text shows the great care taken and perfection arrived at by the publishers of this periodical. We congratulate the corporation upon its well-deserved success.

DIE NEGATIV RETOUCHE: According to the Laws of Art and Nature. By Hans Arnold. A. Hartleben's Verlag, Leipzig and Vienna. The most exhaustive and voluminous work upon retouching ever published. It consists of 480 pages, and is embellished with 53 explanatory illustrations. Every department of the retoucher's art is dealt upon in a masterly manner. The work should be in the hands of every retoucher who is conversant with the German tongue.

